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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/034,433	12/27/2001	David Harel	72829	1725

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FITCH EVEN TABIN AND FLANNERY  
120 SOUTH LA SALLE STREET  
SUITE 1600  
CHICAGO, IL 60603-3406

EXAMINER
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NAHAR, QAMRUN

ART UNIT	PAPER NUMBER
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2191

DATE MAILED: 03/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/034,433	<b>Applicant(s)</b> HAREL ET AL.	
	<b>Examiner</b> Qamrun Nahar	<b>Art Unit</b> 2191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2005.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-17,19,20 and 22-51 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-17,19,20 and 22-51 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

1. This action is in response to the RCE filed on 12/20/2005.
2. Claims 2 and 18 have been canceled.
3. Claims 1, 3-6, 8, 14-15, 19-20 and 39 have been amended.
4. Claims 1, 3-17, 19-20 and 22-51 are pending.

### ***Response to Amendment***

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 3-9, 12, 14-16, 19-20, 24, 26, 28, 30-33 and 35-51 are rejected under 35 U.S.C. 102(e) as being anticipated by Sherman (U.S. 6,205,575).

### **Per Claim 1 (Amended):**

The Sherman patent discloses:

**- a method of specifying a behavior of a system, comprising: (i) playing-in a scenario by operating at least one object of a Graphical User Interface (GUI) of the system, whose behavior is being specified; and then specifying a system reaction in response to said**

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**operating** (Col.14:20 – 38; “scenario tool interface” is interpreted as a Graphical User Interface (GUI) of the system; and see Col.5:1 – 27; “expected behavior” is defined)

**- and (ii) automatically constructing a formal system behavior specification that corresponds to the scenario, based at least partly on said playing in (Col.6:38 – 45).**

**Per Claim 3 (Amended):**

The Sherman patent discloses:

**- wherein said step (i) further includes: a) specifying user action by operating at least one of said objects (Col.6: 27 – 30); b) specifying environment action by operating at least one of said objects (Col.6: 27 – 30); and c) specifying system reaction by operating at least one of said objects (Col.6: 27 – 30, see perform actual simulation).**

**Per Claim 4 (Amended):**

The Sherman patent discloses:

**- wherein said objects include at least one internal object and wherein said step (i) further includes operating at least one internal object (Col.15: 12 – 18).**

**Per Claim 5 (Amended):**

The Sherman patent discloses:

**- wherein said objects include at least one internal object and wherein said step (i) further includes operating at least one internal object (Col.15: 12 – 18).**

**Per Claim 6 (Amended):**

The Sherman patent discloses:

**- further comprising the step of: defining at least one control construct and wherein said step (ii) includes constructing formal system behavior specification that corresponds to the control construct (Col.6:25 – 30, system control and defined).**

**Per Claim 7:**

The Sherman patent discloses:

**- wherein said control construct step includes creating generalization and loops selected from the group that includes dynamic loops, unbound loops and fixed loops (Col. 6: 33 – 35, see repeated iteration).**

**Per Claim 8 (Amended):**

The Sherman patent discloses:

**- wherein said step (ii) includes constructing symbolic messages (Col.13:58 – 67).**

**Per Claim 9:**

The Sherman patent discloses:

**- further comprising the step of: reflecting in the system GUI the result of the played-in scenario (Col.6:51 – 56).**

**Per Claim 12:**

The Sherman patent discloses:

**- wherein said formal system behavior specification being at least one Symbolic timing diagram (Col.8: 46, see MSC, Message Sequence Diagrams, which is also known as Timed Sequence Diagrams or Event traced Diagrams Col.13: 59 - 60).**

**Per Claim 14 (Amended):**

The Sherman patent discloses:

**- further comprising (iii) playing-out said scenario by operating said at least one object of said GUI, wherein in response to said playing out, at least one object of said GUI reflects a reaction of said system in accordance with said constructed formal system specification (Col.5:1 – 27; “expected behavior” is defined, which is interpreted as played-out scenario; and Col.14:25 – 28).**

**Per Claim 15 (Amended):**

The Sherman patent discloses:

**- further comprising the step of: defining at least one condition that may or must hold regarding the system (Col.17:47 – 53,see occur); and wherein said step (ii) includes constructing formal system behavior specification that corresponds to said at least one condition (Col.14:25 – 30,see occur).**

**Per Claim 16:**

The Sherman patent discloses:

**- wherein at least one of said conditions includes defining condition regarding one or more of the operated objects (Col.17: 47 – 53, see voice animation and annotation).**

**Per Claim 19 (Amended):**

This is an apparatus version of the claimed method discussed above, claim 1, wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above.

Thus, accordingly, this claim is also anticipated by Sherman.

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**Per Claims 20 (Amended) & 26:**

These are another versions of the claimed method discussed above (claims 1 and 14), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also anticipated by Sherman.

**Per Claim 24:**

This is another version of the claimed method discussed above, claim 12, wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, this claim is also anticipated by Sherman

**Per Claim 28:**

The Sherman patent discloses:

**- further comprising the step of recording at least one played out scenario, constituting a run (Col.14:25 – 28).**

**Per Claim 30:**

The Sherman patent discloses:

**- further including the step of: indicating if the system behavior specification or portion thereof is successful or violated (Col.15:3 – 12).**



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**Per Claim 31:**

The Sherman patent discloses:

**- wherein said system behavior specification includes existential charts and universal charts, and wherein said universal charts include user action part, environment action part and system reaction part, and further including the step of providing a run that includes either or both of user and environment part and system reaction part, constituting a played scenario, and re-playing the run (Col.14:25 – 28).**

**Per Claim 32:**

The Sherman patent discloses:

**- wherein said system behavior specification includes existential charts and universal charts, and wherein said universal charts include user action part, environment action part and system reaction part, and further comprising the step of, tracing either or both of said existential and universal charts, and indicating if a chart is successful or violated (Col.13:58 – 67 and Col.15:3 – 12).**

**Per Claim 33:**

The Sherman patent discloses:

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**- further comprising the step of providing either or both of the user action part and environment action part of said run, replaying the run and indicating if existential charts are successful or violated (Col.13:58 – 67 and Col.15:3 – 12).**

**Per Claim 35:**

This is another version of the claimed method discussed above, claim 4, wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, this claim is also anticipated by Sherman

**Per Claim 36:**

The Sherman patent discloses:

**- wherein said system GUI includes an object map and further comprising the step of: reflecting in the object map the result of the playing-out (Col.14:47 – 66).**

**Per Claim 37:**

The Sherman patent discloses:

**- wherein said system GUI includes an object map and further comprising the step of: reflecting in the object map the result of the playing-in (Col.14:47 – 66).**

**Per Claim 38:**

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The Sherman patent discloses:

**- wherein said system GUI includes an object map and further comprising the step of:  
reflecting in the object map the result of the playing-in (Col.14:47 – 66).**

**Per Claim 39 (Amended):**

This is an apparatus version of the claimed method discussed above (claims 1 and 14), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, this claim is also anticipated by Sherman.

**Per Claim 40:**

The Sherman patent discloses:

**- wherein said playing-out is used to construct a prototype (Col.15:27 – 31).**

**Per Claim 41:**

This is an apparatus version of the claimed method discussed above, claim 40, wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, this claim is also anticipated by Sherman.

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**Per Claim 42:**

This is another version of the claimed method discussed above, claim 40, wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above.

Thus, accordingly, this claim is also anticipated by Sherman.

**Per Claim 43:**

The Sherman patent discloses:

- wherein said playing-out is used to construct a tutorial (Col.16:51 – 67).

**Per Claim 44:**

This is an apparatus version of the claimed method discussed above, claim 43, wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above.

Thus, accordingly, this claim is also anticipated by Sherman.

**Per Claim 45:**

This is another version of the claimed method discussed above, claim 43, wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above.

Thus, accordingly, this claim is also anticipated by Sherman.

**Per Claim 46:**

The Sherman patent discloses:

**- wherein said playing-out is used to construct a final implementation of a system**

(Col.15:27 – 31).

**Per Claim 47:**

This is another version of the claimed method discussed above, claim 46, wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above.

Thus, accordingly, this claim is also anticipated by Sherman.

**Per Claim 48:**

This is an apparatus version of the claimed method discussed above, claim 46, wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above.

Thus, accordingly, this claim is also anticipated by Sherman.

**Per Claim 49:**

This is a computer program product version of the claimed method discussed above, claim 1, wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, this claim is also anticipated by Sherman.

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**Per Claim 50:**

This is a computer program product version of the claimed method discussed above, claim 20, wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, this claim is also anticipated by Sherman.

**Per Claim 51:**

The Sherman patent discloses:

- **further including animating interaction between GUI objects** (Col.4: 27 – 30, see animation).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 10, 17, 22, 29 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sherman (U.S. 6,205,575) in view of Werner Damm and David Harel, LSC's:

BREATHING LIFE INTO MESSAGE CHARTS, (c) April 1998, (hereinafter "Werner").

**Per Claim 10:**

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The rejection of claim 1 is incorporated, and further, Sherman does not explicitly teach wherein said formal system behavior specification being at least one Live sequence chart (LSC). Werner teaches that formal system behavior specification being at least one Live sequence chart (LSC) (see Abstract).

It would have been obvious to one having ordinary skill in the computer art at the time of the invention was made to modify the method disclosed by Sherman to include that formal system behavior specification being at least one Live sequence chart (LSC) using the teaching of Werner. The modification would be obvious because one of ordinary skill in the art would be motivated to distinguish between possible and necessary behavior both globally and locally.

**Per Claim 17:**

The rejection of claim 10 is incorporated, and Sherman further teaches the step of: selectively modifying at least one of said charts (Col.4:10 – 14).

**Per Claim 22:**

This is another version of the claimed method discussed above, claim 10, wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above.

Thus, accordingly, this claim is also obvious.

**Per Claim 29:**

The rejection of claim 22 is incorporated, and Sherman further teaches wherein said system behavior specification includes existential charts and universal charts, and wherein said universal charts include user action part and system reaction part (Col.13:58 – 67).

**Per Claim 34:**

The rejection of claim 22 is incorporated, and Werner further teaches wherein said Live sequence chart charts include at least two live copies of the same chart simultaneously (pg. 5, see Figure 1, “Illustrating visible events”).

9. Claims 11, 13, 23, 25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sherman (U.S. 6,205,575) in view of Ladkin et al. An Analysis of Message Sequence Charts, (c) June 1992, (hereinafter “Ladkin”).

**Per Claim 11:**

The rejection of claim 1 is incorporated, and further, Sherman does not explicitly teach wherein said formal system behavior specification being Temporal logic language. Ladkin teaches that formal system behavior specification being Temporal logic language (page 3, 3<sup>rd</sup> paragraph).

It would have been obvious to one having ordinary skill in the computer art at the time of the invention was made to modify the method disclosed by Sherman to include that formal system behavior specification being Temporal logic language using the teaching of Ladkin. The



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modification would be obvious because one of ordinary skill in the art would be motivated to provide explicit safety and liveness conditions for MSC's or time sequence charts.

**Per Claim 13:**

The rejection of claim 1 is incorporated, and further, Sherman does not explicitly teach wherein said formal system behavior specification being at least one Timed Buchi Automata. Ladkin teaches that formal system behavior specification being at least one Timed Buchi Automata (page 3, 3<sup>rd</sup> paragraph).

It would have been obvious to one having ordinary skill in the computer art at the time of the invention was made to modify the method disclosed by Sherman to include that formal system behavior specification being at least one Timed Buchi Automata using the teaching of Ladkin. The modification would be obvious because one of ordinary skill in the art would be motivated to provide MSCs in a more expressive manner.

**Per Claims 23 & 25:**

These are another versions of the claimed method discussed above (claims 11 and 13, respectively), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

**Per Claim 27:**

The rejection of claim 26 is incorporated, and Sherman further teaches wherein said testing includes running scenarios and forbidden scenarios (Col.14:55 – 66).

*Response to Arguments*

10. Applicant's arguments with respect to claims 1, 3-17, 19-20 and 22-51 have been fully considered but they are not persuasive.

*In the remarks, the applicant argues that:*

a) Sherman fails to teach (i) playing-in a scenario by operating at least one object of a Graphical User Interface (GUI) of the system, whose behavior is being specified; and then specifying a system reaction in response to said operating.

*Examiner's response:*

a) Examiner strongly disagrees with applicant's assertion that Sherman fails to disclose the claimed limitations recited in claims 1, 3-9, 12, 14-16, 19-20, 24, 26, 28, 30-33 and 35-51. Sherman clearly shows each and every limitation in claims 1, 3-9, 12, 14-16, 19-20, 24, 26, 28, 30-33 and 35-51.

Sherman teaches (i) playing-in a scenario by operating at least one object of a Graphical User Interface (GUI) of the system, whose behavior is being specified; and then specifying a system reaction in response to said operating (Col.14:20 – 38; “scenario tool interface” is interpreted as a Graphical User Interface (GUI) of the system; and see Col.5:1 – 27; “expected behavior” is defined).

In addition, see the rejection above in paragraph 6 for rejection to claims 1, 3-9, 12, 14-16, 19-20, 24, 26, 28, 30-33 and 35-51.

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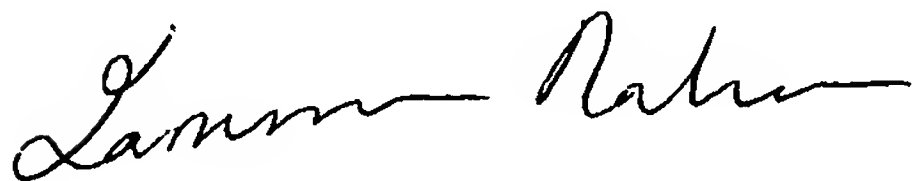
*Conclusion*

11. Any inquiry concerning this communication from the examiner should be directed to Qamrun Nahar whose telephone number is (571) 272-3730. The examiner can normally be reached on Mondays through Fridays from 9:30 AM to 6:00 PM.

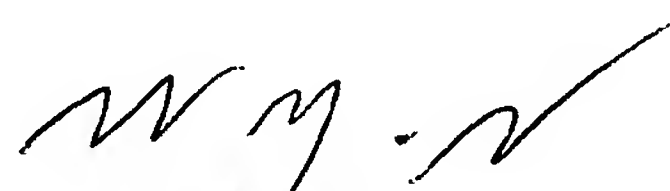
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wei Y Zhen, can be reached on (571) 272-3708. The fax phone number for the organization where this application or processing is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2100 Group receptionist whose telephone number is 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



QN  
March 3, 2006



WEI ZHEN  
SUPERVISORY PATENT EXAMINER